AI-Powered UAV System for Predictive Infrastructure Maintenance

I2CS-YuktiCore

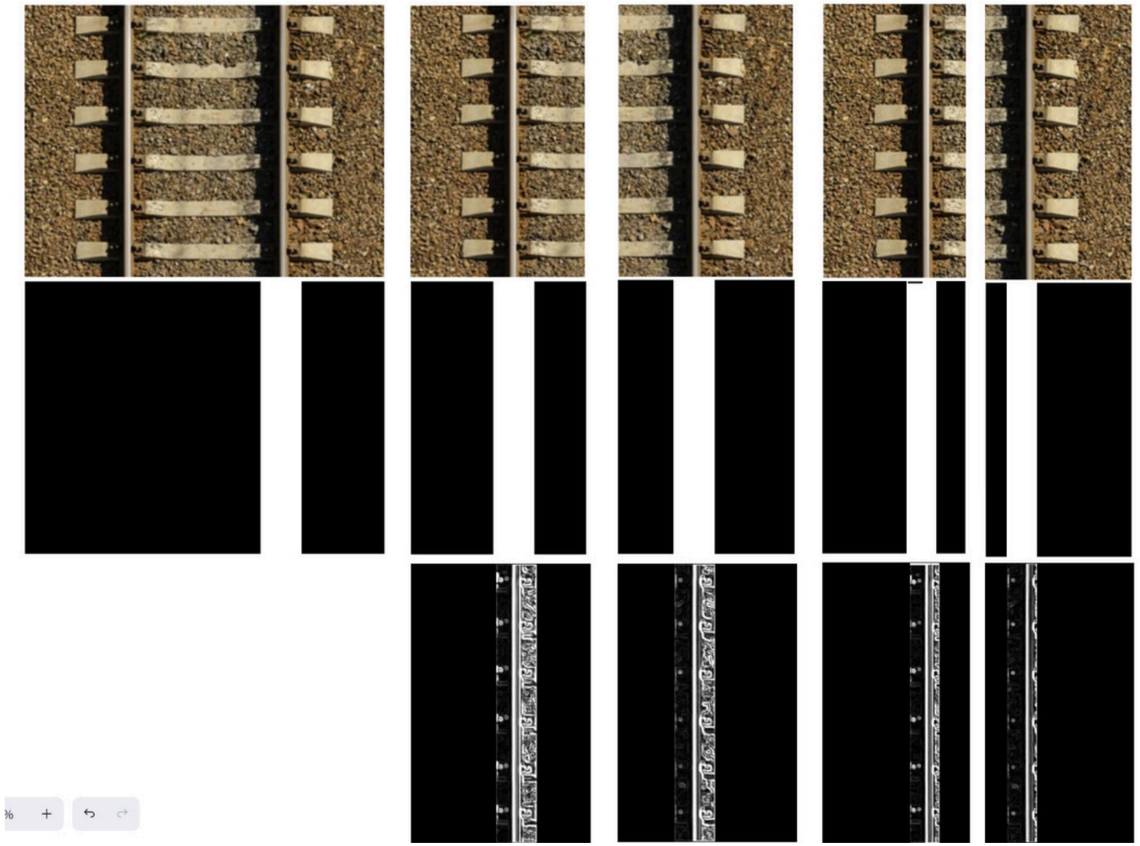
Indian Institute of Information Technology Kottayam

Our Progress

Completed Development Environment Setup:

- **VEGA Tools Installation**
- **SDK Configuration**
- **Successful Compilation**

Created python code to identify major railway track defects from images using (noiseless binary conversion + sobel filters)



Our Plan

Identified and writing code for the VoSPI driver for the thermal camera. (Video over SPI)

- **Will use standard xilinx SPI IP on fabric**

Write RISC compatible code to identify major faults on railway tracks and run it on the ARTIX-7 board. Will be tested using a sample railway image from the internet.

Interface with the SPI RGB camera:

- **Driver code to control the SPI camera to take pictures.**
- **To send the image taken back to a laptop for calibration via Ethernet.**

Write a program to initialize the camera module on boot and take pictures and send it over Ethernet at the press of the button.

Thank you!